



New Jersey Field Office

Northeast Region

New Jersey Field Office

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Dwarf Wedgemussel (*Alasmidonta heterodon*) [endangered]

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IN BRIEF

Habitat:

Creeks and rivers

Diet:

Particles filtered from the water

Main Threats:

Habitat destruction
Habitat degradation
Environmental contaminants

Fun Fact:

Dwarf wedgemussels spend their larval stages attached to the gills of a fish host.



Overview

The dwarf wedgemussel was federally listed as an endangered species in 1990.

The dwarf wedgemussel is a small, freshwater mussel that rarely exceeds 1.5 inches in length. It is the only Atlantic Slope freshwater bivalve (two-shelled) mussel in North

America that has two lateral teeth on the right valve, but only one tooth on the left. The outer shell is dark brown or yellowish brown and often exhibits greenish rays in young mussels. The inner shell is bluish or silvery white. Dwarf wedgemussels feed by filtering small particles from the water.

The dwarf wedgemussel occurs on muddy sand, sand, and gravel bottoms in creeks and rivers of various sizes. In parts of the range, dwarf wedgemussels also occur in clay banks and small riffle areas. This species requires areas with a slow to moderate current, little silt deposition, and well-oxygenated, unpolluted water.

Like other freshwater mussels, dwarf wedgemussel eggs are fertilized in the female as sperm passes over the gills. Fertilization typically occurs in mid-summer and fall, and release of larvae (glochidia) occurs the following spring and summer. Upon release, the glochidia attach to a fish host to encyst and metamorphose, later dropping to the streambed as juvenile mussels. Studies have shown the tessellated darter (*Etheostoma olmstedi*), Johnny darter (*E. nigrum*), mottled sculpin (*Cottus bairdi*), and juvenile Atlantic salmon (*Salmo salar*) to be glochidial host fish for the dwarf wedgemussel.

Threats to the dwarf wedgemussel include direct habitat destruction from damming and channelizing of rivers, and indirect degradation of habitat due to pollution, sedimentation, invasion by exotic species, and fluctuations in water level or temperature. Freshwater mussels, including the dwarf wedgemussel, are sensitive to potassium, zinc, copper, cadmium, and other elements associated with industrial pollution. Industrial, agricultural, and domestic pollution are largely responsible for the disappearance of the dwarf wedgemussel from much of the species' historic range.

Distribution

Species Range: The dwarf wedgemussel is found in ten States from New Hampshire to North Carolina. The species is currently known to occur in 15 major drainages, comprising approximately 70 sites. (A site can have multiple occurrences within a stretch of river.)

Distribution in New Jersey: The dwarf wedgemussel occurs in Sussex and Warren Counties. The species formerly occurred in Morris, Essex, Bergen, and Mercer Counties. See [Federally Listed Species Occurrences by Municipality and County](#) [PDF].



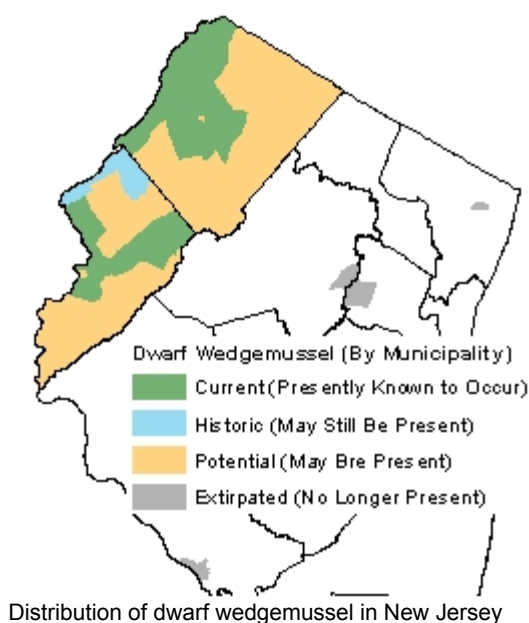
Distribution of dwarf wedgemussel in the U.S.

Examples of actions that may affect this species

The following is provided as technical assistance only and is not intended as a comprehensive list of all activities that may affect this species.

From 1 mile upstream (including tributaries) to 1,000 feet downstream of a dwarf wedgemussel population, and on land within 500 feet from top of bank:

- any in-water construction or disturbance
- any stream modification (e.g., channelizing, diverting, stabilizing, impounding, dredging)
- ground or vegetation disturbances, excavation, or fill
- temporary or permanent increases in erosion or sediment-generating activities
- new or expanded impervious surface
- use of pesticides (e.g., herbicides, fungicides, insecticides, rodenticides) or fertilizers, or releases of other environmental contaminants
- new or modified stormwater infrastructure or waste water discharges to surface or groundwater
- permanent or temporary water diversion or control structures
- new or modified surface or groundwater withdrawals



Along any stream segment upstream of dwarf wedgemussels, including tributaries (> 1 mile from a dwarf wedgemussel population):

- major in-water activities
- stream modification
- major sediment releases
- intensive or wide-spread use of pesticides (e.g., herbicides, fungicides, insecticides, rodenticides)
- accidental, intentional, or incidental discharge or spill of pesticides, petroleum products, industrial chemicals or other environmental pollutant
- new or increased waste water discharges to surface or groundwater
- permanent or temporary water diversion or control structures
- major surface or groundwater withdrawals

Along any stream segment downstream of dwarf wedgemussels (> 1,000 feet from a dwarf wedgemussel population):

- permanent or temporary water diversion or control structures, especially dams

Best Management Practices

The following Best Management Practices are examples of typical Conservation Measures frequently recommended by the New Jersey Field Office in the course of **consultation or technical assistance**.

Permanent Physical and Hydrologic Impacts

- Avoid direct stream modifications upstream or downstream of dwarf wedgemussel populations (e.g., channelizing, diverting, stabilizing, impounding, dredging).

- Avoid new road and underground utility crossings within 1,000 feet downstream and 1 mile upstream of dwarf wedgemussel populations. Initiate early coordination with the Service if existing road or utility crossings must be replaced near or upstream of dwarf wedgemussel populations.
 - Design replacement bridges and culverts in accordance with State requirements for Class A waters (see the [New Jersey Flood Hazard Area Control Act Rules](#) at N.J.A.C. 7:13-11.7).
 - Design replacement bridges to span the stream.
 - Eliminate deck drains on new bridges if possible. Work with the Service in the design and location of bridge drainage outlets.
 - Cut piles or footings at the stream bed or natural ground elevation.
 - Use granular material in all fill areas immediately adjacent to the bridge to reduce sediment reaching the stream.
 - Minimize the number of utility crossings and design them perpendicular to the stream.
- Provide adequate upland buffers on stream segments supporting dwarf wedgemussels and within 1 mile upstream, including tributaries. Preserve and restore at least 300-foot native hardwood or mixed forest riparian buffers. A site-specific buffer design is often necessary.
- Provide at least 150-foot upland buffers of native, woody vegetation > 1 mile upstream of dwarf wedgemussel populations, including tributaries.
- Place riparian buffers around dwarf wedgemussel populations in permanent conservation ownership or easement.
- Avoid permanent or temporary changes to the hydrology of dwarf wedgemussel streams. Maintain the natural predevelopment hydrograph.
- Avoid locating surface or groundwater withdrawals upstream or up-gradient of dwarf wedgemussel populations.
- Minimize impervious surface, maximize stormwater infiltration, and implement other Low Impact Design Techniques from the New Jersey Stormwater Best Management Practices Manual in watersheds supporting dwarf wedgemussels. Work with the Service in the design and location of any unavoidable point discharges of stormwater.
- Do not locate fill or buildings within the 100-year floodplain of dwarf wedgemussel streams.
- Locate public access infrastructure away from dwarf wedgemussel populations.

Environmental Contaminants and Water Quality

- Avoid stormwater or waste water discharges - including to groundwater - that are likely to cause any measurable degradation of water quality in dwarf wedgemussel streams.
- Initiate early coordination with the Service for any new or modified sewage or waste water treatment projects up-gradient of dwarf wedgemussel populations.
- Do not locate any new sewer lines within the 100-year floodplain of dwarf wedgemussel streams, or within 50 feet of wetlands associated with the 100-year floodplain.
- Design and implement emergency management procedures for the containment and clean up of any leaks or spills of waste water or pollutants within watersheds that support dwarf wedgemussels. Report leaks or spills to the [New Jersey Department of Environmental Protection](#) and to the Service immediately.
- Implement the most strict standards for storage, transport, and handling of hazardous materials and other potential pollutants within watersheds that support dwarf wedgemussels.
- Use secondary containment structures around chemical/fuel storage tanks and buildings within watersheds that support dwarf wedgemussels.
- Do not store or mix pesticides, fertilizers or other potential pollutants within 500 feet of streams upstream of dwarf wedgemussel populations.

- Avoid the use of broad-spectrum pesticides within 1 mile upstream of dwarf wedgemussel populations, within 1,000 feet from top of bank.
- Avoid the use of pesticides and fertilizers within 500 feet of dwarf wedgemussel populations.
- Always adhere to pesticide label restrictions for use near aquatic habitat, especially in watersheds that support dwarf wedgemussels.
- Minimize pesticide and fertilizer use, and implement the highest standards for controlling agricultural runoff, within watersheds that support dwarf wedgemussels.

Temporary Impacts

- Avoid in-water work within 1,000 feet of dwarf wedgemussel populations. Initiate early coordination with the Service for in-water work anywhere upstream of dwarf wedgemussel populations.
- Initiate early coordination with the Service if existing road or utility crossings must be maintained, repaired or upgraded near or upstream of dwarf wedgemussel populations.
 - Conduct maintenance during the growing season for local plant communities.
 - Do not use lead-based paints.
 - Implement the [Society for Protective Coatings'](#) Class 1 emission control/containment system standards for structural recoating.
 - Dismantle existing bridges from the top down. Do not allow any debris to reach the stream.
 - Work with the Service in the selection of utility installation methods (e.g., directional drill, open cut).
 - Use turbidity curtains or other appropriate in-water sediment control measures.
 - Avoid grubbing within 50 feet of the stream. Conduct unavoidable clearing by hand wherever feasible.
 - Direct stormwater away from the stream and into approved treatment infrastructure.
 - Direct slurry from drilling to a settling basin away from the stream.
 - Direct any liquid drainage away from the stream, or design a self-containment system for liquid drainage.
 - Do not locate, store or stage fill material, construction causeways, or construction equipment in the stream. Locate construction staging areas at least 150 feet from the stream bank.
 - Do not allow raw concrete to come in contact with the stream.
 - Use care in the transport and placement of fill material to avoid accidental releases into the stream.
 - Cover exposed fill material when not in use or when rain is forecast.
 - Keep motor fuels, lubricants, and other potential pollutants at least 100 feet from the stream.
- Implement the most strict erosion and sediment control standards upstream and up-gradient of dwarf wedgemussel populations, including but not limited to:
 - constructing storm water management infrastructure prior to all other components of a development project to control storm water and sediment during the remaining construction;
 - minimizing the duration of exposed soil by delaying vegetation removal and ground disturbance until immediately before the start of other work in the area;
 - installing two rows of silt fencing (or silt fencing in combination with hay bales) around work areas, with daily inspection and maintenance;
 - using jute matting or other erosion control blankets on disturbed areas immediately after project completion to minimize sedimentation; and
 - promptly re-vegetating areas of temporary disturbance with native species.

- Avoid introductions of invasive or non-native species to dwarf wedgemussel streams and riparian corridors, for example through:
 - thoroughly washing construction equipment offsite before use within dwarf wedgemussel streams or on land within 500 feet from top of bank; and
 - using only native plant species and weed-free mulches and soils for landscaping within 500 feet of dwarf wedgemussel streams.

What to do if this species occurs on your property or project site

- Contact the Service early in planning for any project or activity that may affect the dwarf wedgemussel or its habitat. See [New Jersey Field Office Procedures for Consultation and Technical Assistance](#) for instructions. Through the technical assistance or consultation processes of the Endangered Species Act, the Service will provide project-specific recommendations to avoid or minimize adverse effects to listed species.
- Individual landowners with suitable habitat can also contact the Service for site-specific, proactive conservation recommendations. Most land in New Jersey is privately owned. Voluntary conservation efforts by New Jersey's residents are critical in the conservation and recovery of threatened and endangered species.
- Also see "[Endangered Species and You](#)" Frequently Asked Questions.

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